



Enabling Operations through the Assessment of the COIN Information Environment

by Brian J. Hancock

How can we tell if we are winning?

Commanders at all levels are increasingly asking the question “Are we winning the information war?” While many information professionals dread this question, it should be viewed as an opportunity rather than a threat. Faced with such a challenge, Regional Command South [RC(S)] in Afghanistan developed a solution. The solution not only provides plausible indicators to address the question, but yields viable courses of action which drive the non-lethal targeting process and resulting operations.

Before an organization can make a serious attempt to shape the information environment to support tactical, operational, or strategic objectives, it must first measure the information environment establishing a baseline by which to gauge progress. It is an old CEO’s axiom that “one cannot manage what one cannot measure”. Measuring kinetic environmental effects is a fairly straight-forward, well understood process. The cognitive realm however is largely invisible, ephemeral, and constantly shifting. This presents a number of immediate challenges which confound traditional effects-based models.

Limitations of traditional measurements

To date, the principle tool used to measure the information environment, are valid scientific surveys and opinion polls. Surveys represent a snap shot of local national sentiments at a set point in time, under set conditions. While helpful, they have certain limitations, which make them unsuitable as a sole source of measurement. For instance surveys measure expressed attitudes which are not necessarily indicative of actual values and beliefs that will drive future behavior. Behavior itself, which is frequently the most reliable indicator of how an individual will react in the future, is not considered in most survey instruments. As a simplified example, if a pollster entered a home to survey opinions about illegal drugs, the pollster would only be able to score the instrument on the basis of the responses. If the respondent was in the process of voluntarily preparing opium right in front of the pollster, but responded to all survey questions indicating that he despised all aspects of illegal drugs, he would be scored on the survey instrument as strongly supportive of counter-narcotics efforts. Clearly this would be a misrepresentation of the respondent’s *actual* attitude and beliefs.

Measuring the information environment is further compounded by the issue of domain. The more granular the data to be measured, the easier it is to devise an effective measurement process. Unfortunately such models are rarely scalable. As the domain increases, new models must be created to capture the information environment at that level.

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This article will describe the methods and models employed by the Combined Joint Task Force 10 (CJTF-10) in Afghanistan to measure the information environment at the series, program, and division levels. These methods and models are not to be utilized *in lieu of* valid scientific surveys, but should complement existing information sources to paint a more complete picture of the information environment.

Series Measurement

The Role of MISO

The action arm of counter-insurgency (COIN) information operations (IO) is Military Information Support Operations (MISO) formerly known as Psychological Operations (PSYOP). MISO creates interlocking series of multi-media products designed to slowly shape the attitudes, and ultimately the behavior, of foreign target audiences (TA). MISO series are crafted to achieve specific Supporting Psychological Objectives (SPOs) which advance some key aspect of the Battle Space Owner's (BSO) campaign plan.

Supporting Psychological Objectives are, by doctrine, specific, measurable, and observable. A sample SPO might be to "Increase in TA calls to local tips line" in support of (ISO) a security line of effort. A MISO series contains multiple products designed to plant an idea, nourish it over time, and ultimately promote acceptance of the idea which will manifest itself in a desired behavior change.

Measuring MISO

Exhibit A depicts a hypothetical MISO series designed to encourage enlistment in the country's Local Police (LP). The MISO targeting process, and how it supports the overall non-lethal targeting process which is nested with the BSO's campaign plan, is a complex topic which is worthy of an article unto itself. The present focus is how one *measures* this MISO series.

When the domain is limited to a single MISO series, the information environment is constrained and assessed relative to the specific measurement criteria contained within the series. These measurement criteria are commonly referred to as Measures of Effectiveness (MOE) which is somewhat of a misnomer as it implies causality which is rarely in evidence.

The Local Police promotion series highlights three specific statistics within the larger information environment which are deemed critical for advancing the series and its underlying SPO. Every series must contain clearly defined measures of effectiveness. MOE cannot be tacked on as an afterthought. A series which cannot be measured, and thereby altered on the basis of system feedback, should not be produced. It is the duty of the Effects Officer to research what data is available for series measurement and to advise both the MISO Planner and the MISO Commander (CDR) of his findings.

Where do we stand now- Establishing a baseline

These three statistics must be gathered within the Area of Operations (AO) in which the series run, prior to the release of the series, in order to establish baselines. The first statistic for the Local Police Promotion Series, increase in popularity of the local police, is most easily obtained via survey. Even in sparse COIN environments such as Afghanistan, there are credible polls regularly conducted by reputable polling organizations which report on the perceived popularity of the local police. Ideally series dissemination and completion should be

synchronized with the poll producing this statistics to provide information for the initial baseline and final sentiment at series conclusion.

The second statistic, increase in local police recruiting, can be acquired by consulting the Provost Marshal. If he does not have direct recruiting figures, he will be able to provide the number of new recruits slotted for the basic training program which effectively provides the same information. The Provost Marshall has oversight on initial entry training for the Local Police so he will also be able to provide the final statistic, decrease in AWOL in basic training of Local Police.

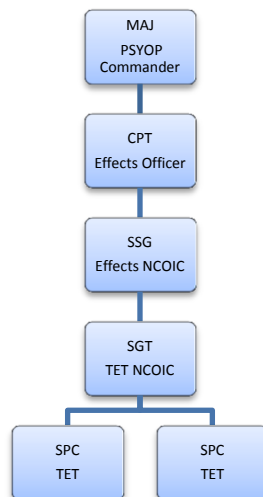
Every MISO series will vary considerably in what MOE are selected to measure the program, and as a result there is no preordained format to display the metrics. statistics, which can be collected repeatedly during series execution, lend themselves to line graphs, while those that can only be collected at the beginning and end of the series are often best presented as a side-by-side bar graph depicting the amount of gain or loss.

Program Measurement

MISO organizes its various series which support a specific line of information (LOI) into programs. For example an Education Program might contain three separate series. The first series might be designed to increase support for general education, the second might encourage the local population to support teachers, and the last might encourage the target audience to send its girls to school as equally as their boys. As the program represents a considerable expansion of domain along logical lines, a new method for assessing the information environment must be employed.

Task Organization: The Analytics Cell

While it is possible for a single individual to conduct series measurement, data collection to measure an entire program is considerably more demanding and requires additional staff. Recognizing this fact, the MISO Company must task organize itself to accomplish this. An analytics/ effects cell should be created composed of an Effects Officer, Effects NCOIC, and the Testing and Evaluation Team (TET) which is normally a Product Development Detachment (PDD) asset. This results in the following organizational structure:



This structure creates a highly capable, specialized team which is able to quantify both program and division level information environment assessments. While it would be possible to gather additional data points, and correspondingly reduce margins of error with more staff, this structure represents what the typical MISO Company in theatre can afford to dedicate to the analytics mission. Psychological Operations Task Forces (POTF) (Battalion level elements) typically have ten full time Soldiers assigned to effects analysis and are thus capable of collecting and maintaining a much more robust data set.

Program Level Methodology: Data Sifting

Program level assessments are data intensive and require collection, analysis, and classification of large volumes of information. (By altering the type of information collected it is possible to portray different aspects of the overall information environment.) The strata of the information environment that is of greatest concern to MISO and BSOs is that which revolves around the COIN center of gravity—the attitudes and actions of the local population.

Whereas surveys quantify only expressed attitudes, an intentional, focused process of data sifting select source documents will yield a treasure trove of local national *actions* as well as attitudes. In order to ensure validity of the data points collected, it is important to only gather and classify first-hand reports of local national attitudes and behavior. Assessed information is typically the opinion of a subject matter expert (SME) and can be construed as conjecture.

At the highest level, data points are classified into either actions or attitudes, as well as whether they are direct or indirect. When predicting behavior, a target's past actions are generally more indicative of future behavior than expressed attitudes. By the same token a direct source is a better predictor than an indirect source. Thus, any data point can receive one of four overall classifications direct action, indirect action, direct attitude, or indirect attitude.

Once the basic classification of the data point has been established, it is scored along a seven point Likert scale with values ranging from strongly positive to strongly negative. Ideally, rubrics should be created with specific examples along each SPO which clearly demonstrate the thresholds between each of the seven ratings in order to minimize rater bias. As these rubrics are not currently available, individual rater bias can be controlled by the Effects Officer training each of the data sifters, and reviewing their work. The Effects Officer thereby injects his own personal bias into each of the raters, which ensures that the data is at least consistent with itself.

DIAC: Direct Impact Action. An observable action performed by the target audience.

DIAT: Direct Impact Attitude. An attitude expressed by a member of the target audience.

IAC: Indirect Impact Action. An action performed by someone with the ability to influence the target audience.

IAT: Indirect Impact Attitude. An attitude expressed by someone with the ability to influence the

Additional weighting is applied based on the number of people expressing the attitude or performing the action (usually only one). Next, the specific Supporting MISO Objective(s) the data point encompasses is recorded, followed by the target audiences who were influenced by the attitude or action. For audit purposes the source of every data point is recorded, as well as a gist of the specific reference which led the analyst to score it.

Program Level Methodology: Source Selection

Ongoing data sources must be selected for sifting which consistently yield a rich sample of local national attitudes and actions related to the various IO/MISO Programs. Sources should be as objective as possible with a roughly equal chance of yielding positive or negative data points. The Effects Officer should be cautious about adding sources to the collection list which are predominantly skewed in one direction without adding a corresponding source which is skewed in the opposite direction. For instance, S-2 intelligence is tasked with red (enemy) tracking, and not surprisingly most of the attitudes and actions captured in their reports would be scored as negative. S-3 operations on the other hand, is tasked with blue (friendly force) tracking, and their data is skewed towards the positive. Adding regular S-2 sources to the collection process without adding corresponding S-3 sources, or vice-versa, would slant the overall data set such that it would not be indicative of the actual environment.

While each command will have to develop its own source list for data sifting based upon available resources, below are some of the larger sources utilized by the 307th MISO CO in RC(S):

- Atmospheric Reports From Key Target Areas
- Open Source Media Reports
- Village Stability Center Situation Reports
- Special Operations Task Force MISO Situation Reports
- Conventional MISO SITREPs
- Tips Line/ Radio Call in Data

SAMPLE DATA

Data Point 1

Weight= 1

Strongly Positive (STP) = 100

Direct = X3

Indirect= X3

Data Point 2

Weight= 1

Neutral (NEU) = 50

Indirect= X1

Action= X3

Data Point 3

Weight= 3

Negative (NEG) = 17

Direct= X3

Attitude= X1

Each member of the analytics unit is assigned a specific group of sources for which they are primarily responsible for sifting. They quickly become the subject matter experts on these sources and in time are able to sift through large volumes of reporting with great efficiency. All team members maintain their own personal data tracker, but all trackers are collated and combined on a weekly basis. An overview of the collection process is included in **Exhibit B**.

Program Level Methodology: Generating the Numbers

How frequently a unit compiles and reports the program data will be a function of that unit's battle rhythm and the richness of the data set itself. Margin of error directly correlates to the number of data points collected, so data should be accumulated until a basic threshold of confidence is achieved before being displayed to higher. As BSOs demand data on a regular basis to make informed decisions, a balance must be struck between accuracy and an acceptable reporting frequency. With a thorough data collection plan and well trained staff, it is possible to portray findings at two week intervals with a reasonable degree of confidence.

Program data is most useful when it is depicted as a trend line over time which is nested with major events as well as friendly and enemy actions. For this purpose a 100 point scale is used. A data point which is strongly positive is worth 100 points, one which is strongly negative is worth 0 points, and a neutral data point is worth 50 points. Additional weighting is applied based on whether the individual data point represents an action as opposed to an attitude and whether it is direct as opposed to indirect. There is no specific formula for precise weighting along these lines; each unit should experiment with different weighting until satisfactory results are achieved.

To begin the process, each MISO series that composes an overall program or line of information is decomposed into its individual SPOs. These SPOs are then aggregated, and all data points which reference these SPOs within the selected period of time are tagged. The data points are then weighted based upon their high level classification which is then multiplied by the appropriate value obtained from the Likert scale. All data points in the subset are then summed and averaged to produce a single value which ranges between 0 and 100. While it is possible to perform this query and the required calculations with Excel, a database such as MS Access is the preferred tool.

For example, imagine a data set composed of the three data points contained in the sample data box above. Now, weight actions three times as much as attitudes, and direct impact indicators three times as much as indirect impact indicators. Finally, as the third hypothetical data point is qualitatively three times as significant as data points which are typically captured in this line of information, it is given an overall weight of three instead of the typical one. The solution for the weighted average which is plotted is contained in the calculation call out box.

Program Level Methodology: Displaying the Output

Once a hard value is obtained it is then plotted on a line chart with time intervals across the X-axis and the numeric rating across the Y-axis. The plotted value represents the prevalence and intensity of the line of information in the overall information environment at that specific point in time. A best practice is to include the exact numeric value above each data point in the graph and the number of data points which comprise that value in parenthesis below the data point.

Exhibit C contains a sample plot of a hypothetical multi-series program to increase the capacity and capability of the local police force. Major actions which effect the information environment are nested in a chart within each data interval. Enemy actions are red, neutral black, and IO/MISO focus for the time period is green. Anomalies in the plot are subjected to additional analysis, with the results depicted in a call out box such as that displayed in the example for 25-Aug.

WEIGHTED AVERAGE CALCULATION

Data Point 1

STP * DIAC

$$100 * 9 = 900$$

Data Point 2

NEU * IIAC

$$50 * 3 = 150$$

Data Point 3

NEG * DIAT

$$17 * 3 = 53$$

$$17 * 3 = 53$$

$$17 * 3 = 53$$

$$AVG(900+150+53+53+53) = 241.8$$

$$AVG(9+3+3+3+3) = 4.2$$

$$241.8 / 4.2 = 57.6 \text{ plotted value}$$

When presenting such a chart to a BSO, it is important to emphasize that due to the limited data set, the values are not precise. What is important is the magnitude and direction of the trend across the line of information. This will help the battle space owner determine if additional resources need to be dedicated to shore up a declining LOI, or to further exploit one that is rapidly gaining traction.

Division Level Measurement

The purpose of division level measurement is to provide the Commanding General (CG) a battle damage assessment of the information environment tied to his non-lethal targeting cycles. At a glance the CG should be able to see how his overall campaign plan is fairing by line of information, and in aggregate. Key findings depict the center of gravity in the current information environment, while opportunities highlight methods for conducting information exploitation that require additional resources and command emphasis. The assessment is presented in a format which is easy to understand, and can be briefed in under five minutes.

As with campaign measurement, division level measurement requires additional resources and techniques to generate the required output. Division level battle space is too large for any one entity to accurately portray the totality of the information environment. A fusion cell must be created to collect, analyze, war game, and disseminate findings.

Gathering the Inputs: the IE AWG

The Information Environment Assessments Working Group (IE AWG) brings together all of the information enablers and allows them to cross talk to produce an overall assessment of the information environment based on the sum of their individual components. The exact composition of the IE AWG will vary from region to region but should include key enablers such as Atmospherics-Gathering, Public Affairs, Open Source Center, Key Leader Engagements Team, MISO, and Information Operations. IO chairs the meeting and acts as the executive sponsor, while MISO collates the inputs and outputs, and proctors the meetings.

The principle output of the IE AWG are qualitative findings that supplement the quantitative data collected by MISO Analytics. The IE AWG solicits information environment emerging developments, risks, and opportunities from each of the enablers on a weekly basis. In this meeting, emerging developments are discussed and corroborated with other sources. Risks are rated along the axis of likelihood and severity and the results power ranked. Opportunities are rated for potential impact and cost and are power ranked in a similar fashion. Upon final review of all qualitative and quantitative information for the week the group collectively decides on what the key findings are for the week. All outputs are then published and shared.

Displaying the Output

Exhibit D contains a hypothetical Division Level Information Environment briefing. The upper portion of the slide is a simple bar graph comparison of the past targeting cycle with the most recently completed targeting cycle by line of information and in aggregate. In this example each targeting cycle has four week duration. Each line of information is taken from the appropriate program level measurement (cf. **Exhibit C**) but is queried on four week intervals corresponding to the “red” or “blue” targeting cycles. The color of the bars is matched to the name of the specific targeting cycle for easy recognition. The values are scored along the same 100 point scale utilized in the program assessment process feeding the non-lethal targeting cycle.

The assessment of the information environment becomes an input to the next targeting cycle, and helps guide future non-lethal engagements.

While four week intervals allow for more data points, and a smaller margin of error, the actual values are still approximate. As in program assessment, the more important finding is how the adjoining targeting cycles are moving relative to one another along each line of information. These trends pinpoint areas where additional resources may be required to arrest a decline, or areas where resources can be removed without damaging the line as a whole. The final bars represent all lines of information combined where each is given equal weight. As some lines of information are clearly more important than others, command guidance should be sought to weight the lines appropriately.

Key findings and opportunities are individually selected from all of the IE AWG outputs produced during the most recent targeting cycle. The sample slide is compact, informative, and effective. With relatively little modification it is suitable to transmit all the way up to the theatre commander.

Conclusion

Societies are complex adaptive systems that are ever changing and difficult to quantify. Some mathematicians have compared them to fractals, which are infinitely complex even when sub divided. There are few battle field commanders who would not like highly accurate data on local national sentiments and behaviors-- ideally in real time.

The methods and techniques presented in this paper should be viewed as a step forward rather than final, mature, models. They were designed to initiate a dialogue among information professionals in order to implement an iterative process of improvement. In summation the models presented are tools to be used by a panel of information experts tasked with the assessment of the overall information environment. Some of the strengths of these methods are as follows:

- Utilize resources available to any MISO Company
- Data generated is useful for many different applications
- Novel approach which is generally well received
- Nest well with ongoing operations and targeting cycles
- Provide an additional useful lens through which to view the battlefield

The models also have a number of constraints which need to be analyzed and resolved by the larger community:

- Resources have to be committed for some time before useful results are generated
- Low number of data points leads to a high margin of error
- Rubrics need to be devised and implemented to reduce rating bias
- Specific formulas for weighting need to be developed
- While nested with operations, only correlation is shown, not causation

Save for the issue of causation, each of these limitations has been reviewed throughout the article. In order to establish mathematically valid correlation between an operation and an effect in the information environment three things must be present. First there must be a correlation and second the operation and the effect must be in temporal proximity. The methods and techniques presented in this article can satisfy the first two requirements. The third

requirement—and where almost all social models fail—is that every other plausible explanation for the environmental change must be disproven.

Only the PSYMAT model created by Dr Virginia Grimes has the potential to meet all three requirements, although at a very granular level. In the PSYMAT model values are calculated for the information environment, and the MISO/ IO impact indicators. Values for external factors such as local media and kinetics are also calculated. The rough formula for MISO/ IO Causality is: Effect= Information Environment + Impact Indicators +/- Sum of External Factors. While the model is very data intensive, it holds considerable promise, and merits additional exploration.

What is certain is that COIN conflicts are proliferating, and that the nations of the free world will be increasingly drawn into them. Winning these conflicts will require a robust “hearts and minds” campaign which can only be measured and assessed in the information environment. By utilizing the tools contained herein the enterprising information professional will be able to provide the battlefield commander the assessments he requires, when he requires them. This will provide a decisive advantage and help ensure that critical IO resources are allocated where they are needed most.

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EXHIBIT A CONTINUOUS MISSION: LOCAL POLICE PROMOTION SERIES

Mission: RPSE will conduct Local Police (LP) Promotion Influencing Operations IOT advance the Local Police as the Heroes and True Protectors of the country.

Lines of Effect: Increase Local Police Capacity and Capability

Dissemination Method:

- Face to Face/ KLE
- PSYOP Radio/ RIAB Public Service Announcements and radio messaging
- Print Graphic Design Messaging (Billboards, Banners, Posters, Handbills)
- Relationship Building Items
- Television (National Programming)

Product Message: The Local Police are the True Protectors of the country. They are the heroes who stand in the gap to protect all families against those who attack the freedom and future of our country.

End State: Local Nationals stand firmly against all insurgent groups and openly support the Local Police.

Measures of Effectiveness:

1. Increase in popularity of the Local Police.
2. Increase in Local Police recruiting.
3. Decrease in AWOL in basic training of Local Police.

RADIO SCRIPT:
(Happy music plays)
Announcer: Rejoice residents of the area of Khavaren. The area of Khavaren is a safer place, thanks to the merciful one, and to the bravery, efficiency, and vigilant eye of the Local Police. In a recent patrol in that area the Local Police discovered a weapons cache and arrested members of the INS. The weapons and explosives that the Local Police destroyed were meant to be used by the INS to kill members of our community and to destroy infrastructure in the area. The diligence of the Local Police prevented violence, and destruction. The Local Police, the True Protectors of our country, risk their lives, to keep the citizens and the nation safe and peaceful.

PSYOP Talking Points/ Objectives:

1. LP are the professional native force.
2. The LP are committed to serving the people IOT ensure safety and security.
3. The LP are professionals who hold true to the values of honor and integrity.

Target Audience:
Primary: TA-G: Local Populace
Secondary: TA-H: Local Adult Males

Political Impact in Area: A strong Local Police backed by the population will create a safe, stable and secure environment.

PSYOP Objective
PO F- increase support for Local Police
SPO F1- seeks enlistment in the Local Police

Exhibit B: IE Campaign Measurement Overview

Inputs:

- PSYOP Annex POs & SPOs
- PSYOP Sitreps
- Atmospheric Reporting
- Open Source Reporting
- Tip Line/ Radio Call Data

Date	Type	STP	POS	SLP	NEU	SLN	NEG	STN	SPO	TA	Source	Gist
14-Jul-11	DIAT						1		H2	a	Whisper Reports 20110715	A man believes the Local Police are getting a lot of help from Coalition Forces and would fall apart without their help.
14-Jul-11	DIAT							1	H2	s	Whisper Reports 20110715	An Imam said the Local Police are always shooting innocent civilians.
14-Jul-11	DIAC		1						J1	a	CF Tip Line	... Imam Mohammad is involved w/ the IED Cell working along MSR Newport...also stated that he has info about South City as well.
14-Jul-11	DIAC		1						G3,G4	a,n	National Tip Line	A farmer from South City wants the government to provide power so he can refrigerate the grapes he grows

LOI: Increase Local Police Capacity and Capability

Outputs:

- Campaign MOE
- Division LOI
- PSYMAT Causality
- Assessments

EFFECT: Local Police Promotion

2 Weeks Ending

Water works opening	Market bombing	Hearts over the burning	Start of Fall fighting	40 children killed in school bombing	New District Governor announced
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